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X8060 NDT

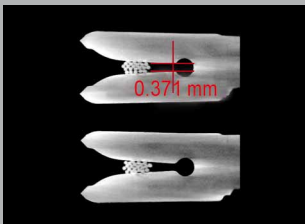# Universal
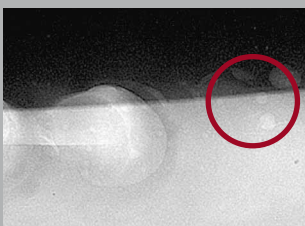# 2-D/3-D X-ray Inspection

MXI+µCT

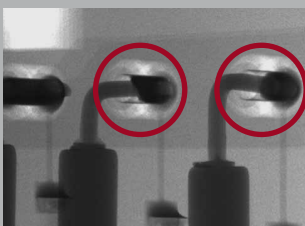## Semi-Automatic X-ray Inspection in 2-D and 3-D Modes
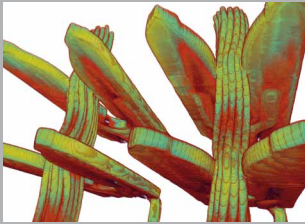
Clamping joints, 3-D volume reconstruction

Clamping joints, 3-D slice reconstruction with distance measurement

0.371 mm

Defective aluminium weld seam

Defective THT solder joints

2-D and 3-D inspection without mechanical conversion

Designed for larger, heavier inspection objects

Precision manipulator with up to 8 CNC-capable axes

High magnification with angled radiation

Convenient, direct positioning by clicking on optical overview image

Fast, accurate 2-D measurement process independent of magnification

Microfocus computed tomography (µCT) for volume reconstruction

Independent, real-time image processing with Viscom analysis tools

Realistic 3-D volume model with measurement in all spatial directions

Excellent image quality through high-contrast resolution

X-ray inspection delivers information about the interior of a 3-D inspection object. Even in 2-D mode, quick, highly magnified views of the third dimension are possible. But with the help of modern computed tomography, the 3-D mode allows the reconstruction of complete volumetric models, allowing non-destructive slices to be made or measurements taken in any direction.

This flexibility makes the X8060 NDT a valuable inspection tool for various industrial applications. Typical defects recognized by this non-destructive process are tears, bridges, pores, voids, foreign bodies, form deviations, incorrect positioning, misalignment, or inhomogeneous material transitions.

X8060 NDT – the flexible µCT-system

The X8060 NDT was developed for **destruction-free inspection** in industrial and scientific settings. The **typical application areas** of the X8060 NDT are characterized by the system's ability to handle not only large or heavy inspection objects, but also to inspect the smallest parts, with the highest magnification.

Optional **microfocus computed tomography (µCT)** enables 3-D inspection and visualization of the inspection object. Along with the spatial assignment of production defects and material flaws, individual slices or section images can also be visualized with this process. Due to its exceptional spatial display capabilities, the µCT improves defect localization and enables direct measurement within the volumetric model.

The system's **8-axis manipulator** opens up entirely new possibilities for angled radiation with high magnification. The structure of hidden solder joints in electronic assemblies, such as with BGAs, is revealed, and larger inspection objects can be inspected with the same system. These multiple application possibilities save costs and increase system utilization. A **real-time image processing system** provides all image refinements without time lag, allowing the operator to concentrate fully on the inspection task.

The core of the X8060 NDT's X-ray technology is a high-capacity, open **microfocus X-ray tube**, designed to provide highest flexibility, outstanding image quality and stable in-line operation. Its user-friendly design guarantees a practically unlimited service life and quick, easy maintenance, minimizing costs.
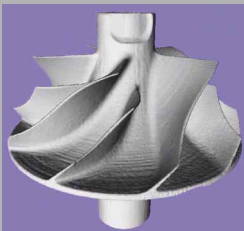
Viscom specializes in automatic inspection. A wide selection of **Viscom's own analysis tools** are also available for the X8060 NDT.
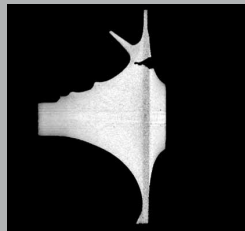
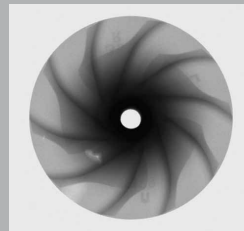**µCT: Microfocus computed tomography of a turbine rotor**

Optical view

3-D volume reconstruction

Non-destructive 3-D slice through a casting defect

2-D X-ray image, casting defects

Technical Specifications

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X8060-16 | X8060-20 | X8060-22 | X8060-25

X-ray technology

X-ray tube	Open all-metal Viscom tube, series XT9000 with reflection or transmission target			
High voltage	10 - 160 kV	10 - 200 kV	10 - 225 kV	10 - 250 kV
Tube current	5 - 1000 µA or 5 - 3000 µA			
Target load	Max. 40 W/500 W			
Detail recognition	< 2 µm/< 1 µm			
Magnification	Direct geometric magnification without collimator > 4000 x			
Image intensifier	High-resolution digital flat panel detectors (12/14/16 bit)			
Option	0 - 60° angled view with digital flat panel detector			
X-ray cabinet	Fully protected device according to RöV (German X-ray regulations) from 30 April 2003 and US Standard 21 CFR § 1020-40 and additional international standards. Radiation leakage rate < 1 µSv/h			

Software

User interface	Viscom XMC
Option	BGA analysis BGA-S
	Pore analysis software (void calculation) ACA-S
	THT analysis software THT-S
	Wire sweep analysis software WSA-S
	µCT module for all available detectors listed above

System computer

Operating system	Windows®
Processor	Intel® Core™ i7

Sample handling
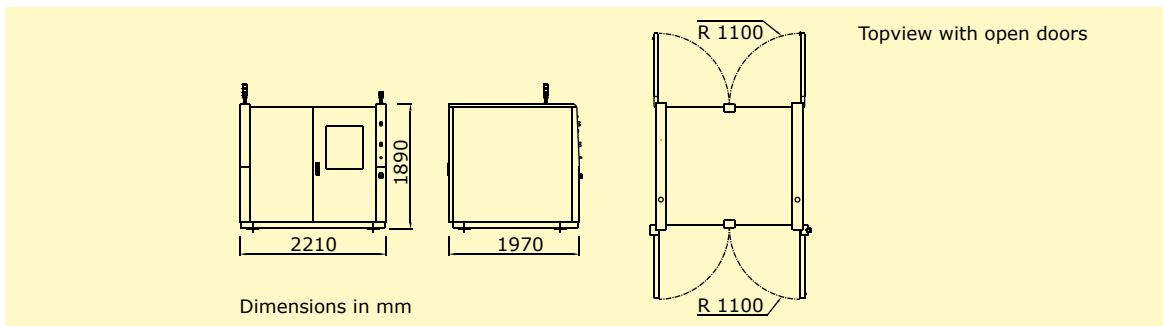
Manipulator	4 axes (X, Y, Z and rotation n x 360°)
Horizontal X/Y-axis	Travel range: 610 x 460 mm (24.0" x 18.1")
Vertical Z-axis	Travel range: 800 mm (31.5")
Detector axis (option)	60° pivoting, variable detector distance, travel range: 700 mm (27.6")
Tilt axis	± 60° option
Max. sample size X/Y	660 x 510 mm (26.0" x 20.1") (L x W)
Max. sample weight	30 kg (66 lbs), with option tilt axis 10 kg (22 lbs)
Test piece change	Pneumatic front window
Option	Pneumatic front slide door
CT axis	Standard

Inspection speed

	Variable

Other system data

Power requirements	230/400 VAC; 3 P, N, PE; 16 A; 50/60 Hz; 3 kVA; compressed air 6 - 8 bar (90 psi) (oil-free)
System dimensions	2210 x 1970 x 1890 mm (87.0" x 77.6" x 74.4") (W x D x H)
Weight	Approx. 4000 kg (8818 lbs)
Environmental conditions	Temperature: 10 - 35°C (50 - 95°F), relative humidity: 20 - 80 % non-condensed

Topview with open doors

Dimensions in mm